

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of the claims in the application.

In the Claims

1-12. (Cancelled)

13. (Previously Presented) The distal protection system of claim 43 wherein the first engagement member comprises a ridge; and

wherein the retrieval device comprises a catheter and the second engagement member comprises an inflatable cuff, the cuff having an inflated and a deflated position, wherein when the cuff is in the inflated position at a point relative to the filter cartridge where at least a portion of the cuff is distal the ridge and defines an interference fit between the catheter and the filter cartridge and so that at least a portion of the filter cartridge is prevented from moving distally beyond the cuff.

14. (Previously Presented) The system of claim 13, wherein the filter cartridge comprises a frame portion, a filter portion disposed on the frame portion, and a longitudinal portion having a proximal end, a distal end and a first lumen disposed therebetween.

15. (Previously Presented) The system of claim 13, wherein the catheter is comprised of a first tubular member having a proximal end, a distal end and a first lumen disposed therebetween, wherein the first lumen is fluidly connected to the cuff.

16. (Previously Presented) The system of claim 13, wherein the catheter is further comprised of a second lumen disposed parallel to the first lumen, the second lumen having a proximal opening and a distal opening.

17. (Previously Presented) The system of claim 14, wherein the proximal region with a ridge is a proximal section of the longitudinal portion.

18. (Previously Presented) The system of claim 14, wherein the proximal region with a ridge is a proximal section of the frame portion.

18. (Previously Presented) The system of claim 14, wherein the proximal region with a ridge is a proximal section of the frame portion.

19. (Original) The system of claim 14, wherein the longitudinal portion has a substantially circular cross section.

20. (Original) The system of claim 14, wherein the ridge is a distally decreasing region on outer perimeter of the proximal end of the longitudinal portion.

21. (Original) The system of claim 14, wherein the longitudinal portion further comprises a second lumen having a proximal end and a distal end, wherein the second lumen is disposed around the first lumen, defining an inner longitudinal portion disposed between the first lumen and the second lumen and an outer longitudinal portion disposed around the second lumen, and wherein the outer longitudinal portion and the inner longitudinal portion are connected proximate the distal end of the outer longitudinal portion.

22. (Original) The system of claim 21, wherein the ridge is a distally decreasing region on the outer perimeter of the inner longitudinal portion.

23. (Original) The system of claim 21, wherein the ridge is a distally increasing region on the inner perimeter of the outer longitudinal portion.

24. (Original) The system of claim 21, wherein the longitudinal member and the frame portion of the filter cartridge are monolithic.

25. (Original) The system of claim 21, wherein the cuff in the expanded state has a toroidal shape.

26. (Currently Amended) The system of claim 13, wherein the cuff comprises a plurality of ~~expandable~~ expandable balloons disposed at the distal end of the tube.

27. (Original) The system of claim 13, wherein the cuff is disposed on the outer surface of the tube.

28. (Original) The system of claim 13, wherein the cuff is disposed within the first lumen of the tube.

29. (Previously Presented) A method of retrieving a cartridge from a body vessel lumen, the method comprising the steps of:
providing a filter cartridge having a proximal ridge disposed within a body vessel lumen;
providing a retrieval device having a distally located inflatable cuff;
advancing the retrieval device distally in the body vessel lumen until at least a portion of the retrieval device is distal the proximal most portion of the filter cartridge;

engaging the filter cartridge with the retrieval device such that at least a portion of the filter cartridge is prevented from moving distally beyond at least a distal portion of the retrieval device, wherein said step of engaging the filter cartridge with the retrieval device includes expanding the inflatable cuff to define an interference fit between the filter cartridge and the retrieval device; and

advancing the retrieval device and the filter cartridge proximally from the body lumen.

30. (Canceled)

31. (Previously Presented) The method of claim 29 wherein the step of advancing the retrieval device includes advancing the retrieval device until at least a portion of the inflatable cuff extends distally beyond the ridge.

32. (Original) The method of claim 31 further comprising the steps of:
providing a wire extending distally through at least a portion of the filter cartridge and proximally from the body lumen; and
advancing the balloon catheter proximally over the wire.

33. (Original) The method of claim 31 further comprising the steps of:
advancing a sheath to a point proximate the distal end of the filter cartridge; and

advancing the filter cartridge proximally into the sheath.

34. (Original) The method of claim 31, wherein the step of providing a filter cartridge further comprises the steps of:

advancing a wire distally to a filter cartridge deployment location;

advancing a sheath distally over the wire; and

advancing a filter cartridge through the sheath using a catheter.

35. (Previously Presented) The distal protection system of claim 43 wherein the filter cartridge has a frame portion and a filter portion; and wherein the means for engaging the retrieval device is an outer surface region of the proximal region of the filter cartridge with an increased coefficient of friction relative to other portions of the filter cartridge for frictionally attaching the filter cartridge to the retrieval device.

36. (Previously Presented) The device of claim 35, further comprising a radiopaque band on the proximal region.

37. (Previously Presented) The device of claim 35, further comprising a second ridge on the proximal region.

38. (Previously Presented) The device of claim 35, further comprising a retrieval device including a catheter, the catheter including an inflatable cuff having a first inflation chamber and a second inflation chamber located distal the first inflation chamber.

39. (Previously Presented) The device of claim 38, further comprising a balloon on the catheter proximal the inflatable cuff.

40. (Previously Presented) The device of claim 39, wherein the balloon is an angioplasty balloon.

41. (Previously Presented) The device of claim 38, further comprising a radiopaque band proximate the inflatable cuff.

42. (Previously Presented) The device of claim 38, wherein the inflatable cuff has a surface with an increased coefficient of friction.

43. (Previously Presented) A distal protection system comprising:
a filter cartridge with a distal region and a proximal region, the proximal region comprising a first engagement member shaped and configured to engage a retrieval device; and
a retrieval device, wherein the retrieval device has proximal and distal ends and wherein the retrieval device distal end comprises a second engagement member that is shaped and configured to engage the first engagement member on the filter cartridge proximal region.